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RESEARCH NOTE

Escape rooms as tourist attractions: Enhancing visitors' experience through new technologies

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Abstract

Purpose: This paper aims to assess the impact of new technologies on escape room visitors' experience based on the analysis of online reviews. Over the last five years, real-life escape rooms have become popular tourist attractions in many European cities. Growing competition stimulates the escape room providers to search for new experience design strategies. One of the new strategies assumes the active use of new technologies, including special effects and virtual reality technologies opting.

Methods: The present study is based on the evidence from Claustrophobia, one of the leading European technologically advanced escape room providers. The empirical part of the study includes a semi-structured interview with the company's co-founder and an analysis of 746 visitors' reviews posted on TripAdvisor.

Results: The results show that technologically sophisticated escape rooms create a more authentic tourist experience with a deeper immersion in the escape room theme. At the same time, technical failures and bugs can reduce visitors' satisfaction.

Implications: These results suggest that high-tech escape rooms could become more attractive tourist attractions only if their owners can invest substantial funds in maintaining the technical level and staff training. High-tech escape room providers need to maintain high expenditures for technical support and staff training in order to build a sustainable positive visitors' experience.

Keywords: escape room, tourist experience, experience design, content analysis

JEL Classification: L82, M31, Z33

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1 INTRODUCTION

Real-life escape rooms are relatively new recreational activities. The first escape room was opened in Tokyo in 2007 (Nicholson, 2016). Since 2013, this type of business has been actively developing in such European cities as Budapest, London, Moscow, Athens, Istanbul, and others (Dilek and Dilek Kulakoglu, 2018). Real-life escape rooms are a relatively new recreational activity. Usually, an escape room is a team game in which players have to solve several puzzles in order to leave the room in a limited amount of time (Nicholson, 2016; Kolar, 2017).

Despite their short history, escape rooms became important tourist attractions (Stasiak, 2019). Recent studies show that escape rooms provide a brand-new type of immersive tourist experience (Kolar, 2017) and thus, attract new tourists to destinations (Dilek and Dilek Kulakoglu, 2018; Bakhsheshi, 2019).

Currently, the escape rooms market is rapidly changing. The growing number of escape room providers intensifies competition and turns the market from the "blue ocean" into the "red ocean" (Gündüz, 2018; Stasiak, 2019). Growing competition stimulates the escape room providers to search for new solutions and new experience design strategies (Gündüz, 2018). One of the new strategies assumes the active use of innovative technological solutions such as special effects (SFX) and virtual reality (VR). This paper aims to assess the impact of new technologies on escape room visitors' experience based on the evidence from Claustrophobia, one of the leading European technologically advanced escape room providers.

2 LITERATURE REVIEW

Theoretical concepts of experience economy (Pine & Gilmore, 1998) and experiential marketing (Schmitt, 1999)

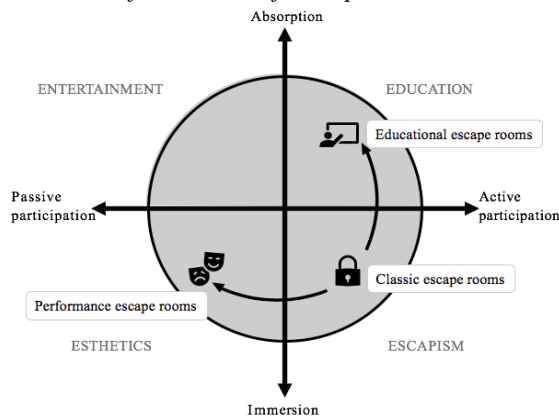


were proposed in the late 1990s and since then gained widespread recognition in business and research (Schmitt, 2011). Researchers have shown the wide applicability of these concepts in tourism, and experience became one of the key concepts in travel and tourism studies (Oh et al., 2007; Ek et al., 2008). In particular, empirical studies have focused on the visitors' experiences for various tourist attractions such as restaurants (Jin et al., 2012), museums (Radder and Han, 2015), and hotels (Knutson et al., 2009). These studies show that a well-developed experience design can positively affect visitors' satisfaction and behavioral intentions to revisit or to recommend an attraction.

Escape rooms along with theme parks are almost perfect examples of places built on principles drawn from Pine & Gilmore's experience economy concept (Pine & Gilmore, 2002). Moreover, in terms of the business model, escape rooms belong to the most "experience-based" types of activities involving the sale of experience as a distinct economic offering (Pine & Gilmore, 2016; Misirlis et al., 2018). This means that escape rooms have reached the highest level of the economic value progression where a company provides visitors not services but memorable events that engage each individual in a personal way (Pine & Gilmore, 2016; Vaz et al., 2017).

From the point of view of Pine & Gilmore's four realms of an experience model (Pine & Gilmore, 1998) classic "puzzle-solving" escape room can be sorted to escapism that involves both active participation and a great immersion into the experience (Bodnár, 2019). Escapist type of experience perfectly matches what is happening in the escape room: players have both to immerse themselves in the room's story (for example, feel like Sherlock Holmes) and to actively participate in the creation of their own experience (for example by solving puzzles to find out the murderer's name). However, in recent years, new types of escape rooms have emerged that provide other types of experience (Figure 1). On the one hand, educational escape rooms in schools, colleges, and universities (Wise et al., 2018; Cain, 2019; Kinio et al., 2019) provide an educational experience with less significant immersion, but in some cases with more active participation. On the other hand, escape rooms that include a performance with actors often involve less active participation combined with deeper immersion (players can solve fewer puzzles in search of a murderer, but they can meet him face to face).

Figure 1. Escape rooms within the Pine & Gilmore (1998) four realms of an experience



Until recently, there was a lack of research examining the experiences of escape rooms' visitors. According to the literature review in a paper published in mid-2018 (Kolar and Čáter, 2018), there were only two academic papers on escape rooms. In 2015, Nicholson conducted a global survey of escape rooms' owners (Nicholson, 2016). This paper presented an analysis of escape rooms mainly in terms of their features and business strategies. Nicholson's survey also allowed him to collect some information about escape rooms' visitors, but only from the point of view of their socio-demographic characteristics, rather than experiences. Two years later, Kolar published the first study of escape room visitors' experience based on netnographic research (Kolar, 2017). This study included the content analysis of TripAdvisor reviews posted by visitors of two leading escape room providers in New York and Budapest. Based on the analysis, Kolar concluded that experience rooms provide new, unique, and fun experiences through challenging activities (puzzles) and social interaction during the game (teamwork).

Several new escape room studies have appeared in the last three years. Some of these researches analyze the phenomenon of escape room from the supply side with the focus on escape room providers' business and marketing strategies (Gündüz, 2018; Wójcik-Augustyniak & Multan, 2020), but most research focused on visitors' experience (Dilek and Dilek Kulakoglu, 2018; Pink et al., 2019; Stasiak, 2019). These "experience-focused" surveys based on data from three different countries (Turkey, Malaysia, and Poland respectively) generally confirmed Kolar's findings on escape rooms as a source of rather new and authentic experience with the important role of cognitive activity and social interaction.

Currently, there are three substantial research gaps in the field of escape room researches:

1. There are no studies analyzing both the supply side (escape room providers) and the demand side (visitors) of the escape rooms.
2. There are no studies with a focus on high-tech escape rooms or other types of escape rooms, which are shifting from standard "puzzle-solving" game design (e.g. performance-included rooms or action rooms).
3. There are no studies with detailed analysis of visitors' negative reviews.

This study aims to fill these gaps by discussing the impact of innovative business strategy on visitors' experience.

3 METHODOLOGY AND STUDY DESIGN

The empirical part of the study is based on the case of Claustrophobia, one of the leading European technologically advanced escape room providers. This company was founded in 2013 in Moscow and currently manages more than 100 escape rooms in seven countries. Claustrophobia ranks 11th in the global rating of the best escape room providers (Top Escape Rooms Project, 2019). This is the highest position not only among Russian companies but also among all escape room providers from emerging markets.

According to the company's corporate mission, Claustrophobia wants to raise escape rooms to a new quality level with a higher degree of immersion (Claustrophobia,

2019). This brand-new level of immersion arises from “latest technologies” used by the company in all of its rooms and locations (TripAdvisor, 2020).

When developing and managing escape rooms, Claustrophobia follows all five-key experience-design principles proposed by Pine & Gilmore (Pine & Gilmore, 1998). Table 1 contains the implications of these principles in Claustrophobia's rooms.

Table 1. Experience-design principles in Claustrophobia's rooms

Principle	Application example
Theme the experience	Each escape room is built around a "legend", usually developed based on plots of popular books and movies.
Create positive cues	Various sound and light SFX, revealing the "legend" and enhancing players' immersion
Eliminate negative cues	Strong online quality control system that allows head office to receive feedback from players within a few minutes after the end of the game
Mix in memorabilia	Unique branded souvenir bracelets awarded to players who successfully escaped from the room
Engage physical senses	Visual, sound and tactile stimuli in each room, olfactory stimuli in some rooms (for example, in the room "Perfume")

Source: Pine & Gilmore, 1998

The Claustrophobia case gives us a piece of evidence to find the answer to the following research questions (RQ):
RQ1. Can new technologies change escape room visitors' experience?

RQ2. Can new technologies give a competitive advantage to escape room providers?

The methodology of the study is based on an analysis of Claustrophobia visitors' online reviews posted on TripAdvisor and a semi-structured interview with the company's co-founder. These methods were separately used in previous escape room studies (Kolar 2017, Dilek and Dilek Kulakoglu, 2018; Gündüz, 2018; Chenini & Touaiti, 2018). A more detailed description of the methods and data used will be presented below.

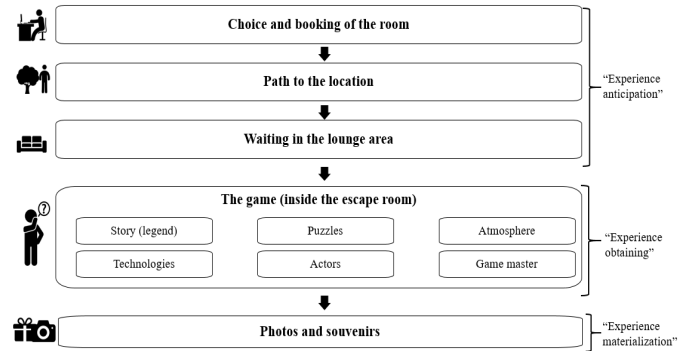
The first phase of the study was based on a semi-structured interview with one of the company's co-founder. The interview included questions about the company's value proposition, its points of difference, and key aspects of customer experience management. This interview and the analysis of the relevant literature allows developing a list of stages and cues that create visitors' experience before, during, and after experience room game (Figure 2).

The second phase of the study includes a content analysis of Claustrophobia visitors' reviews. This method involves assigning thematic codes to individual reviews, depending on their content, followed by a quantitative assessment of various parameters (for example, the frequency of individual codes in a sample of reviews).

Content analysis was based on the reviews posted on Tripadvisor web service for Claustrophobia's escape rooms located in Moscow. Tripadvisor is one of the most popular global tourist portals that is widely used in similar studies (Vásquez, 2011, Khoo et al., 2017).

At the time of access (February 2019), Claustrophobia's Moscow rooms had 746 reviews in Russian and in English. 684 of them were positive, while 62 were negative. Positive and negative reviews were studied separately.

Figure 2. Stages and concepts of experience creation in escape rooms



The content analysis of visitors' reviews was conducted using a special software QDA Miner in combination with the manual procedure of coding for assuring the quality of research results. QDA Miner is a qualitative and mixed-method data analysis software package (LaPan, 2013) that allows various manual and computer-assisted options for coding and text analyzing. Recent tourism and hospitality research often use this package as a tool for analyzing online reviews (Egresi & Prakash, 2019; Li & Ryan, 2020).

In addition to the experience creation concepts presented above, three additional groups of codes were added:

Concepts and topics from previous escape room experience studies (Kolar, 2017; Dilek and Dilek Kulakoglu, 2018; Pink et al., 2019) such as “fun”, “fear”, “teamwork” etc.

Codes for behavioral intentions (“revisit” and “recommend”). These two intentions traditionally regarded as adequate metrics of stated loyalty for tourist attractions and destinations (Oppermann, 2000; Yoon & Uysal, 2005; Meleddu et al., 2015).

Marketing features (“price” and “service quality / customer orientation”). These features were not included in the previous escape rooms studies, but they were used in studies of other tourist attractions such as restaurants (Gan et al., 2017) and museums (Alexander et al., 2015).

The analysis included the calculation of two indicators: frequency of codes and co-occurrence of codes. Frequency of codes shows what share of reviews with a particular code in the sample:

$$\text{Frequency (code A)} = \frac{\text{Number of reviews with code A}}{\text{Total number of reviews (sample size)}} \quad (1)$$

The co-occurrence of codes was estimated based on the Jaccard Index. This index is calculated as the ratio of the number of reviews containing two codes to the number of reviews containing at least one of the codes:

$$\text{Jaccard Index (code A, code B)} = \frac{\text{Number of reviews (code A} \cap \text{code B)}}{\text{Number of reviews (code A} \cup \text{code B)}} \quad (2)$$

4 FINDINGS AND DISCUSSION

The co-founder of the company said during his interview: “We don't like escape rooms where you have to solve a set of puzzles to open many locks. Therefore, we decided to do everything differently. In our rooms, we use dramatic scenarios and unexpected technological hints to create for a

visitor a completely immersive atmosphere". Thus, it was possible to expect a more frequent mention of the atmosphere and technologies compared to riddles in the positive feedback from visitors. Table 2 summarizes the key factors that form a positive experience of Claustrophobia visitors.

Table 2. Frequency of codes in positive reviews

Concept (code)	Count (number of cases)	Relevance (% of cases)
Like	632	92.40%
Recommend	259	37.90%
Atmosphere	250	36.50%
Interest	244	35.70%
Puzzles	208	30.40%
Fun	201	29.40%
Revisit	193	28.20%
Game master	191	27.80%
Story	161	23.50%
Customer orientation	152	22.20%
Teamwork	138	20.20%
Brainpower	124	18.10%
Difficult	79	11.50%
Technologies	69	10.10%
Fear	58	8.50%
Lounge area	53	7.70%
Booking	50	7.30%
Price	48	7.00%
Location	44	6.40%
Medium	40	5.80%
Easy	30	4.40%
Photo souvenirs	27	3.90%
Actors	22	3.20%
Fit skills	22	3.20%

Source: authors' calculations using QDA Data Miner software

The analysis of the data presented in Table 1 shows that the escape room's atmosphere is the most frequently mentioned positive cue that shapes the visitors' experience. This result differs from the results obtained in the previous studies based on reviews of the "classic" escape rooms' visitors where most frequently mentioned concepts was "fun" (Kolar, 2017), "game" (Dilek and Dilek Kulakoglu, 2018) and "puzzle" (Stasiak, 2019). Moreover, in the Claustrophobia visitors' reviews, a new concept of "Technologies" was found. This concept is mentioned much less frequently than the "Atmosphere", which can be explained by the fact that visitors are more focused on the results of technologies (i.e., the review is more likely to contain a reference to "immersion in the atmosphere of a vampire castle" than to "special lighting effects depicting a vampire castle").

The analysis of concepts' co-occurrence presented in Table 3 shows a close relationship between the "Atmosphere" and the "Story" concepts. This may mean that the Claustrophobia room's atmosphere includes both the well-developed story (often based on a plot from books or movies) and special effects creating the effect of full immersion to this story. This type of experience with a high level of authenticity and immersion is closer to the experience of immersive theatres' visitors (Biggin, 2017). According to the insight from the company's co-founder interview, the company believes that "immersive performance is the thing that will definitely develop in the future" and try to use cues from an immersive theatre in the escape rooms.

Table 3. Co-occurrence of codes in positive reviews (Jaccard Index)

	Actors	Atmosphere	Comback	Customer_orientation	Difficult	Easy	Fear	Fun	Interest	Brainpower	Story	Like	Location	Medium	Mixed	Game_master	Photo_souvenirs	Fit_skills	Price	Puzzles	Lounge_area	Recommend	Booking	Teamwork	Technologies
Actors	1.00	0.08	0.01	0.02	0.00	0.00	0.16	0.02	0.02	0.00	0.08	0.04	0.02	0.02	0.00	0.02	0.02	0.02	0.05	0.01	0.04	0.06	0.00	0.00	0.01
Atmosphere	0.08	1.00	0.17	0.24	0.09	0.07	0.19	0.20	0.24	0.14	0.48	0.35	0.05	0.08	0.08	0.24	0.04	0.05	0.05	0.31	0.10	0.25	0.03	0.15	0.12
Revisit	0.01	0.17	1.00	0.17	0.08	0.04	0.04	0.18	0.18	0.14	0.12	0.29	0.05	0.04	0.03	0.21	0.05	0.02	0.06	0.17	0.06	0.15	0.09	0.14	0.05
Customer_orientation	0.02	0.24	0.17	1.00	0.12	0.05	0.09	0.16	0.16	0.13	0.19	0.22	0.09	0.07	0.06	0.64	0.07	0.06	0.06	0.20	0.17	0.14	0.07	0.11	0.10
Difficult	0.00	0.09	0.08	0.12	1.00	0.04	0.04	0.07	0.12	0.10	0.09	0.10	0.04	0.01	0.12	0.14	0.03	0.01	0.04	0.15	0.07	0.09	0.02	0.09	0.09
Easy	0.00	0.07	0.04	0.05	0.04	1.00	0.06	0.04	0.04	0.03	0.05	0.04	0.03	0.03	0.03	0.09	0.05	0.04	0.02	0.04	0.06	0.03	0.03	0.08	0.05
Fear	0.16	0.19	0.04	0.09	0.06	1.00	0.09	0.09	0.03	0.15	0.08	0.03	0.04	0.06	0.10	0.04	0.04	0.05	0.06	0.05	0.08	0.03	0.05	0.05	0.05
Fun	0.02	0.20	0.18	0.16	0.07	0.04	0.09	1.00	0.33	0.13	0.16	0.30	0.05	0.05	0.04	0.18	0.03	0.01	0.07	0.16	0.06	0.19	0.04	0.14	0.06
Interest	0.02	0.24	0.18	0.16	0.12	0.04	0.09	0.33	1.00	0.16	0.19	0.34	0.05	0.06	0.09	0.18	0.04	0.03	0.06	0.25	0.09	0.24	0.05	0.14	0.10
Brainpower	0.00	0.14	0.14	0.13	0.10	0.03	0.03	0.13	0.16	1.00	0.11	0.19	0.08	0.03	0.04	0.15	0.03	0.06	0.06	0.21	0.09	0.14	0.06	0.21	0.08
Story	0.08	0.48	0.12	0.19	0.09	0.05	0.15	0.16	0.19	0.11	1.00	0.22	0.06	0.08	0.10	0.20	0.05	0.07	0.05	0.25	0.08	0.21	0.03	0.10	0.16
Like	0.04	0.35	0.29	0.22	0.10	0.04	0.08	0.30	0.34	0.19	0.22	1.00	0.06	0.05	0.00	0.27	0.04	0.03	0.07	0.28	0.08	0.39	0.08	0.21	0.09
Location	0.02	0.05	0.05	0.09	0.04	0.03	0.03	0.05	0.05	0.08	0.06	0.06	1.00	0.08	0.04	0.10	0.03	0.02	0.05	0.08	0.10	0.05	0.08	0.10	0.07
Medium	0.02	0.08	0.04	0.07	0.01	0.03	0.04	0.05	0.06	0.03	0.08	0.05	0.08	1.00	0.07	0.06	0.02	0.09	0.02	0.07	0.05	0.06	0.05	0.06	0.12
Mixed	0.00	0.08	0.03	0.06	0.12	0.09	0.06	0.04	0.09	0.04	0.10	0.00	0.04	0.07	1.00	0.07	0.00	0.09	0.02	0.10	0.04	0.03	0.02	0.04	0.10
Game_master	0.02	0.24	0.21	0.64	0.14	0.05	0.10	0.18	0.18	0.15	0.20	0.27	0.10	0.06	0.07	1.00	0.05	0.06	0.06	0.24	0.15	0.16	0.07	0.13	0.12
Photo_souvenirs	0.02	0.04	0.05	0.07	0.03	0.04	0.03	0.04	0.03	0.04	0.03	0.02	0.00	0.05	1.00	0.04	0.12	0.03	0.10	0.06	0.07	0.04	0.07	0.04	0.07
Fit_skills	0.02	0.05	0.02	0.06	0.01	0.02	0.04	0.01	0.03	0.06	0.07	0.03	0.02	0.09	0.09	0.06	0.04	1.00	0.01	0.06	0.07	0.03	0.01	0.07	0.07
Price	0.05	0.05	0.06	0.06	0.04	0.04	0.05	0.07	0.06	0.06	0.05	0.07	0.05	0.02	0.02	0.06	0.12	0.01	1.00	0.05	0.06	0.08	0.07	0.07	0.05
Puzzles	0.01	0.31	0.17	0.20	0.15	0.06	0.06	0.16	0.25	0.21	0.25	0.28	0.08	0.07	0.10	0.24	0.03	0.06	0.05	1.00	0.07	0.22	0.04	0.17	0.12
Lounge_area	0.04	0.10	0.06	0.17	0.07	0.03	0.05	0.06	0.09	0.09	0.08	0.10	0.05	0.04	0.15	0.10	0.07	0.06	0.07	1.00	0.07	0.07	0.07	0.05	0.05
Recommend	0.06	0.25	0.15	0.14	0.09	0.03	0.08	0.19	0.24	0.14	0.21	0.39	0.05	0.06	0.03	0.16	0.06	0.03	0.08	0.22	0.07	1.00	0.05	0.19	0.09
Booking	0.00	0.03	0.09	0.07	0.02	0.08	0.03	0.04	0.05	0.06	0.03	0.08	0.08	0.05	0.02	0.07	0.07	0.01	0.07	0.04	0.07	0.05	1.00	0.07	0.03
Teamwork	0.00	0.15	0.14	0.11	0.09	0.05	0.05	0.14	0.14	0.21	0.10	0.21	0.10	0.06	0.04	0.13	0.04	0.07	0.07	0.17	0.17	0.19	0.07	1.00	0.06
Technologies	0.01	0.12	0.05	0.10	0.09	0.02	0.05	0.06	0.10	0.08	0.16	0.09	0.07	0.12	0.10	0.12	0.07	0.07	0.05	0.12	0.05	0.09	0.03	0.06	1.00

Source: authors' calculations using QDA Data Miner software

At the same time, the use of new technologies can form negative visitors' experience. Table 4 shows that "Technologies" are among the three most mentioned concepts in negative reviews.

Table 4. Frequency of codes in negative reviews

Concept (code)	Count (number of cases)	Relevance (% of cases)
Game master	22	35.50%
Puzzles	17	27.40%
Technologies	16	25.80%
Atmosphere	12	19.40%
Booking	9	14.50%
Lounge area	8	12.90%
Story	5	8.00%
Location	3	4.80%
Actors	2	3.20%
Photo souvenirs	2	3.20%

Source: authors' calculations using QDA Data Miner software

As a rule, this happens due to technical breakdowns and bugs inside the escape room. One of the reviewers wrote as follows: "In the middle of the game, the equipment broke down in the room. Our game master came to us in order to fix it, and the atmosphere of the room simply disappeared". The results indicate a dilemma faced by providers of escape rooms focused on the use of new technologies. On the one hand, the use of new technologies in escape rooms enhances visitors' experience by making it more authentic and immersive. This new type of experience can potentially give a competitive advantage to an escape room provider and make it more attractive for novelty-seeking tourists (Lee & Crompton, 1992). On the other hand, problems associated with the use of technological solutions can reduce the visitors' satisfaction: a significant share of negative reviews relates to various technical failures and bugs. This happens even despite the fact that Claustrophobia is taking a set of measures aimed at preventing failures, including staff training, creation of its own R&D department, and development of quality management system covering its own and franchised locations.

The creation of high-tech escape rooms is associated with high investments not only in technology but also in related business processes. However, these investments play a crucial role: without them, technologies will lead to visitors' dissatisfaction rather than their new experiences. Thus, the competitive advantage of escape rooms is provided not by new technologies themselves, but by the proper customer experience management based on these technologies.

5 CONCLUSIONS, LIMITATIONS AND FURTHER RESEARCH

The content analysis of online reviews allows identifying key factors that form experience, satisfaction, and behavioral intentions of Claustrophobia visitors. While original escape room experience is usually based on fun, teamwork, and puzzle-solving (Kolar 2017; Dilek and Kulakoglu 2018; Stasiak, 2019), for Claustrophobia it is the atmosphere that became a most frequently mentioned factor creating positive visitors' experience. The escape room's atmosphere includes the well-developed story and special effects creating the effect of full immersion into this story. As a result, atmospheric escape rooms positively influence customer satisfaction and loyalty in relation to the intention to revisit and the intention to recommend. At the same time, the use of technologically sophisticated special effects can reduce visitors' satisfaction due to various technical failures and bugs. This means that high-tech escape room providers need to maintain high expenditures for technical support and staff training in order to build a sustainable positive visitors' experience.

This research has certain limitations that guide directions for further research. Firstly, the results based on the evidence from only one high-tech escape room provider. A comparative study of the visitors' experience of two or more providers can give additional insights. Secondly, the empirical study covers only escape rooms located in Moscow, Russia. Additional data from various countries and cities where Claustrophobia's franchise partners are located could show cross-cultural differences in the visitors' perception of high-tech escape rooms. Thirdly, the content analysis of online reviews in this paper does not focus on the characteristics of reviewers such as gender, age, or region of residence. Further research would benefit from the detailed analysis of interconnections between escape room visitors' characteristics and their experience. Finally, the study includes a relatively small sample of negative online reviews. This problem arose because most online reviews of escape rooms are quite positive. Alternative research methods (such as focus groups or interviews) could give a deeper understanding of factors that form the negative experience of escape room visitors.

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